CLAIMS

1. A branching filter comprising:

a first filter with a relatively low passband, having a first temperature property-improvement thin film; and

a second filter with a relatively high passband, having a second temperature property-improvement thin film,

wherein the thickness of the first temperature property-improvement thin film is different from that of the second temperature property-improvement thin film so that the temperature coefficient of frequency of the first filter is larger than that of the second filter.

2. The branching filter according to Claim 1,

wherein the first filter and the second filter are formed of surface acoustic wave filters.

3. The branching filter according to Claim 1,

wherein the first filter and the second filter are piezoelectric thin-film resonance filters.

4. The branching filter according to Claim 2,

wherein the surface acoustic wave filters are each formed using a piezoelectric substrate composed of a $LiTaO_3$ substrate or a $LiNbO_3$ substrate, and the first and the

second temperature property-improvement thin films are SiO_2 films formed on the piezoelectric substrate.

5. The branching filter according to Claim 4, wherein the thickness of the SiO_2 film provided on the first filter is larger than that of the SiO_2 film provided on the second filter.

6. The branching filter according to Claim 5, wherein, when the wavelength of the first filter is represented by $\lambda 1$, the thickness of the SiO_2 film of the first filter is set in the range of 0.18 $\lambda 1$ to 0.38 $\lambda 1$.

7. The branching filter according to Claim 5 or 6, wherein, when the wavelength of the second filter is represented by $\lambda 2$, the thickness of the SiO_2 film provided on the second filter is set in the range of 0.08 $\lambda 2$ to 0.28 $\lambda 2$.

8. The branching filter according to one of Claims 1 to 7, wherein the first filter and the second filter are ladder filters each having a plurality of series arm resonators and a plurality of parallel arm resonators.

9. The branching filter according to Claim 8, further

comprising:

at least one inductance element connected in series to one of the parallel arm resonators of the ladder filter forming the first filter.

10. The branching filter according to Claim 8, further comprising:

at least one inductance element connected in parallel to one of the series arm resonators of the ladder filter forming the second filter.

11. The branching filter according to one of Claims 1 to 10,

wherein the first filter and the second filter are formed on respective piezoelectric substrates and are formed as respective chip components.

12. The branching filter according to one of Claims 1 to 10,

wherein the first filter and the second filter are formed using the same piezoelectric substrate and are collectively formed as a single chip component.

13. A surface acoustic wave filter used as a reception filter of a branching filter,

wherein the surface acoustic wave filter is formed so that the temperature coefficient of frequency is positive with respect to the change in temperature.

14. The surface acoustic wave filter according to Claim 13,

wherein the surface acoustic wave filter includes a piezoelectric substrate composed of a $LiTaO_3$ or a $LiNbO_3$ substrate, electrodes formed on the piezoelectric substrate, and a temperature property-improvement thin film of a SiO_2 film formed so as to cover the electrodes on the piezoelectric substrate, and

when the wavelength determined by an electrode cycle is represented by λ, the thickness of the SiO_2 film is set in the range of 0.3 λ to 0.38 λ so as to have a positive temperature coefficient of frequency with respect to the change in temperature.